**Application No.: 10/506,510** 

## Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

## **Listing of Claims:**

- 1. (Currently Amended) A submount, comprising:
  - (a) a submount substrate; and
  - (b) a solder layer that:
    - (b1) is formed on the top surface of the submount substrate; and
  - (b2) has a surface roughness, Ra, of at most 0.18 μm and has an average crystal-grain diameter of at most 3.5 μm.
- 2. (Previously Presented) A submount as defined by claim 1, wherein the solder layer has a surface roughness, Ra, of at most  $0.15 \mu m$ .
- 3. (Previously Presented) A submount as defined by claim 1, wherein the solder layer has a surface roughness, Ra, of at most  $0.10~\mu m$ .
  - 4. (Cancelled)
- 5. (Original) A submount as defined by claim 1, wherein the top surface of the submount substrate has a surface roughness, Ra, of at most  $0.10~\mu m$ .

## **Application No.: 10/506,510**

- 6. (Original) A submount as defined by claim 1, the submount further comprising a solder-protecting barrier layer formed between the submount substrate and the solder layer.
- 7. (Original) A submount as defined by claim 6, the submount further comprising an electrode layer formed between the submount substrate and the solder-protecting barrier layer.
- 8. (Original) A submount as defined by claim 7, the submount further comprising between the submount substrate and the solder-protecting barrier layer:
  - (a) an intimate-contact layer formed such that it makes contact with the top surface of the submount substrate; and
  - (b) an element diffusion-preventing layer formed on the intimate-contact layer; the electrode layer being placed on the element diffusion-preventing layer.
  - 9. (Original) A submount as defined by claim 8, wherein:
    - (a) the intimate-contact layer comprises titanium;
    - (b) the element diffusion-preventing layer comprises platinum;
    - (c) the electrode layer comprises gold;
    - (d) the solder-protecting barrier layer comprises platinum; and
    - (e) the solder layer comprises gold-tin-based solder.
- 10. (Original) A submount as defined by claim 1, wherein the submount substrate comprises an aluminum nitride-sintered body.

**Application No.: 10/506,510** 

11. (Cancelled)